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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
|-----------------|-------------|----------------------|---------------------|------------------|
| 09/920,635 | 08/03/2001 | Peter J. Janssen | US010347 | 6071 |

24737 7590 05/14/2003

PHILIPS ELECTRONICS NORTH AMERICAN CORP
580 WHITE PLAINS RD
TARRYTOWN, NY 10591

EXAMINER

SHAPIRO, LEONID

| ART UNIT | PAPER NUMBER |
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2673

DATE MAILED: 05/14/2003

Please find below and/or attached an Office communication concerning this application or proceeding.



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Office Action Summary

Application No.

09/920,635

Applicant(s)

JANSSEN ET AL.

Examiner

Leonid Shapiro

Art Unit

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01-08-02 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

Drawings

1. Figure 1 should be designated by a legend such as --Prior Art-- because only that which is old is illustrated. See MPEP § 608.02(g). A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

2. Claims 1-2, 16-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA (Admitted Prior Art) in view of Haruhiko (JP No. 07-199866).

As to claim 1, APA teaches a liquid crystal display (LCD) device (See Fig. 1, item 100, in description See paragraph 003), comprising: a plurality of pixels arranged in a matrix of row and columns, each pixel including, a pixel switching device having first and second terminals and control terminal (See Fig. 1, items 110, 120, 150, 112, in description See paragraph 004), and a storage device connected to the first terminal of the pixel switching device (See Fig. 1, items 112, 114, in description See paragraph 005); a plurality of data lines connected to the second terminals of the pixel switching device; a plurality of data drivers connected to the data lines and providing data to the pixels (See Fig. 1, items 110, 120, 130, 112, in description See paragraph 004); a plurality of scanning lines connected to the control terminals of the pixel switching

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devices for selectively connecting the first and second terminals of the pixel switching devices to provide the data to the storage device (See Fig.1, items 110,150,160,112, in description See paragraphs 004-005).

APA does not show at least one switch responsive to a corresponding control signal to selectively connect two of data lines to each other.

Haruhiko teaches at least one switch responsive to a corresponding control signal to selectively connect two of data lines to each other (connecting switches are turned on in period when image signal is not inputted to signal lines) (See Drawings 1,3, items 1-1, 5, 2-1, in description See page 2, paragraph 0008, page 3, paragraph 0017, page 4, paragraph 0025). It would have been obvious to one of ordinary skill in the art at the time of invention to implement column lines connection as shown by Haruhiko in the APA apparatus in order to selectively connect two of the data lines to each other.

As to claim 16, APA teaches an image display device (See Fig. 1, item 100, in description See paragraph 003), comprising: a plurality of pixels arranged in a matrix (See Fig.1, items 110,120,150,112, in description See paragraph 004), a plurality of column lines connected to the pixels (See Fig.1, items 110,120,130,112, in description See paragraph 004); a plurality of column drivers connected to the column lines and providing data to the pixels (See Fig.1, items 110,120,130,112, in description See paragraph 004).

APA does not show means for selectively connect two column lines to each other.

Haruhiko teaches at least one switch responsive to a corresponding control signal to selectively connect two of data lines to each other (connecting switches are turned on in period when image signal is not inputted to signal lines) (See Drawings 1,3, items 1-1, 5, 2-1, in

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description See page 2, paragraph 0008, page 3, paragraph 0017, page 4, paragraph 0025). It would have been obvious to one of ordinary skill in the art at the time of invention to implement column lines connection as shown by Haruhiko in the APA apparatus in order to selectively connect two of the column lines to each other.

As to claims 2,17, Haruhiko teaches at least one switch responsive to a corresponding control signal to selectively connect two of data lines to each other (connecting switches are turned on in period when image signal is not inputted to signal lines) (See Drawing 1, items 1-1, 5, 2-1, in description See page 2, paragraph 0008, page 3, paragraph 0017, page 4, paragraph 0025).

3. Claims 3,7,18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA and Haruhiko as aforementioned in claims 1,2,16 in view Keeney et al. (PUB. No.: US 2002/0113766 A1).

As to claims 3,7, APA and Haruhiko do not teach a register corresponding to each cross-column switch and providing the control signal for the cross-column switch.

Keeney et al. teaches to control additional circuitry and set up bypass bit, which could be loaded from external memory (registers) after the display is turned on (See Fig. 2, items 34,44, in description See paragraph 0040). It would have been obvious to one of ordinary skill in the art at the time of invention to implement the register control as shown by Keeney et al. in the APA and Haruhiko apparatus in order to repair inoperative pixels in a display without requiring redundant circuitry (See paragraph 0007 in Keeney et al. reference).

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As to claim 18, APA and Haruhiko do not teach a plurality of registers each corresponding to one of the switches and storing a data value indicating whether the corresponding switch should be opened or closed.

Keeney et al. teaches to control additional circuitry and set up bypass bit, which could be loaded from external memory (registers) after the display is turned on (See Fig. 2, items 34,44, in description See paragraph 0040). It would have been obvious to one of ordinary skill in the art at the time of invention to implement the register control as shown by Keeney et al. in the APA and Haruhiko apparatus in order to repair inoperative pixels in a display without requiring redundant circuitry (See paragraph 0007 in Keeney et al. reference).

As to claim 19, Haruhiko teaches a cross-column switch extending between two column lines selectively connected to each other (See Drawings 1,3, items 1-1, 5, 2-1, in description See page 2, paragraph 0008, page 3, paragraph 0017, page 4, paragraph 0025).

4. Claims 4 and 6,20 are rejected under 35 U.S.C. 103(a) as being unpatentable over APA and Haruhiko as aforementioned in claims 1,17 in view of Lee et al. (US Patent No. 6,028,442).

As to claims 4,20 APA and Haruhiko do not show a common test line and at least one switch comprises a column test switch extending between a corresponding one of the data lines and the common line.

Lee et al. teaches a common test line and at least one switch comprises a column test switch extending between a corresponding one of the data lines and the common line See Fig. 5, items T1-T3, D1-D6, in description See Col. 3, Lines 13-24). It would have been obvious to one of ordinary skill in the art at the time of invention to use common test line as shown by Lee et al.

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in the APA and Haruhiko apparatus in order use effectively LCD substrate space (See Col. 2, Lines 8-15 in the Lee et al. reference).

As to claim 6, APA and Haruhiko do not show a common test line and at least one switch comprises a column test switch extending between a corresponding one of the data lines and the common line.

Lee et al. teaches a common test line and at least one switch comprises a column test switch extending between a corresponding one of the data lines and the common line See Fig. 5, items T1-T3, D1-D6, in description See Col. 3, Lines 13-24). It would have been obvious to one of ordinary skill in the art at the time of invention to use common test line as shown by Lee et al. in the APA and Haruhiko apparatus in order use effectively LCD substrate space (See Col. 2, Lines 8-15 in the Lee et al. reference).

APA, Haruhiko and Lee do not show a plurality of common pair selection switches each connected between a pair of the column test switches and the common test line.

Lee et al. teaches of grouping pair of data lines connected to the first pad. It would have been obvious to one of ordinary skill in the art at the time of invention to use pair of data lines as shown by Lee et al. to modify the APA and Haruhiko, Lee et al. apparatus to implement a plurality of common pair selection switches each connected between a pair of the column test switches and the common test line in order use effectively LCD substrate space (See Col. 2, Lines 8-15 in the Lee et al. reference).

5. Claim 5 rejected under 35 U.S.C. 103(a) as being unpatentable over APA, Haruhiko and Lee et al. as aforementioned in claim 4 in view of Keeney et al.

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APA, Haruhiko and Lee et al. do not teach a register corresponding to each cross-column switch and providing the control signal for the cross-column switch.

Keeney et al. teaches to control additional circuitry and set up bypass bit, which could be loaded from external memory (registers) after the display is turned on (See Fig. 2, items 34,44, in description See paragraph 0040). It would have been obvious to one of ordinary skill in the art at the time of invention to implement the register control as shown by Keeney et al. in the APA, Haruhiko and Lee et al. apparatus in order to repair inoperative pixels in a display without requiring redundant circuitry (See paragraph 0007 in Keeney et al. reference).

6. Claim 8-9, 11, 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Henley (US Patent No. 5,459,410) in view of Haruhiko.

As to claim 8, Henley teaches a method of repairing a defect in a liquid crystal display (LCD) device including a plurality of pixels arranged in a matrix of rows and columns (See Fig. 1, items 11, 13, 15, in description See Col. 4, Lines 49-65), a plurality of column lines connected to the plurality of pixels (See Fig.1, items 13, 11, in description See Col. 4, Lines 49-65), the method comprising: identifying a defective column in the LCD device, the defective column including a first one of the column lines (See Fig. 2, 7, items 37, 29, 12i-12l, in description See Col. 2, Lines 29-34, Col. 8, Line 63-67, Col. 9, Lines 38-42).

Henley does not show a plurality of column drivers connected to the column lines and providing data to the pixels, and a plurality of switches each responsible to a corresponding control signal to selectively connect two columns lines to each other, connecting at least one

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pixel of the defective column to a second one of the column lines for a second one of the column in the LCD device.

Haruhiko teaches a plurality of column drivers connected to the column lines and providing data to the pixels (See Draw. 1, item 10, in description See page 3, paragraph 0016), and a plurality of switches each responsible to a corresponding control signal to selectively connect two columns lines to each other (See Drawings 1,3, items 1-1, 5, 2-1, in description See page 2, paragraph 0008, page 3, paragraph 0017, page 4, paragraph 0025). It would have been obvious to one of ordinary skill in the art at the time of invention to implement column lines connection as shown by Haruhiko in the Henley apparatus to connect at least one pixel of the defective column to a second one of the column lines for a second one of the columns in the LCD device in order satisfy the need for the apparatus for repairing panels (See Col. 2, Lines 4-12 in the Henley reference).

As to claims 9,11, Henley does not show connecting the at least one pixel of the defective column to the second one of the column lines comprises closing a first one of the switches connected to the defective column.

Haruhiko teaches a plurality of switches each responsible to a corresponding control signal to selectively connect two columns lines to each other (See Drawings 1,3, items 1-1, 5, 2-1, in description See page 2, paragraph 0008, page 3, paragraph 0017, page 4, paragraph 0025). It would have been obvious to one of ordinary skill in the art at the time of invention to implement column lines connection as shown by Haruhiko in the Henley apparatus to connect at least one pixel of the defective column to a second one of the column lines for a second one of

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the columns in the LCD device in order satisfy the need for the apparatus for repairing panels (See Col. 2, Lines 4-12 in the Henley reference).

As to claim 13, Henley teaches identifying the defective column comprises identifying the portion of the first column line which is not connected to any of the column drivers (See Fig. 7, items 12i-12l, in description See Col. 9, lines 37-42).

As to claim 14, Henley and Haruhiko do not show to identifying the defective column driver.

Henley teaches to identify the defective column comprises identifying the portion of the first column line which is not connected to any of the column drivers (See Fig. 7, items 12i-12l, in description See Col. 9, lines 37-42) and high resolution of Henley inspection system (See Col. 2, Lines 30-38), it would have been obvious to one of ordinary skill in the art at the time of invention to modify the Haruhiko and Henley apparatus to detect defective column driver in order satisfy the need for the apparatus for repairing panels (See Col. 2, Lines 4-12 in the Henley reference).

7. Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over Henley and Haruhiko as aforementioned in claim 9 in view Keeney et al. (PUB. No.: US 2002/0113766 A1).

Henley and Haruhiko do not teach a plurality of registers connected to the plurality of switches, the method further comprising storing a data value in one of the registers connected to the first switch to provide a control signal to close the first switch..

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Keeney et al. teaches to control additional circuitry and set up bypass bit, which could be loaded from external memory (registers) after the display is turned on (See Fig. 2, items 34,44, in description See paragraph 0040). It would have been obvious to one of ordinary skill in the art at the time of invention to implement the register control as shown by Keeney et al. in the Henley and Haruhiko apparatus storing a data value in one of the registers connected to the first switch to provide a control signal to close the first switch in order to repair inoperative pixels in a display without requiring redundant circuitry (See paragraph 0007 in Keeney et al. reference).

8. Claim 12 is rejected under 35 U.S.C. 103(a) as being unpatentable over Henley and Haruhiko as aforementioned in claims 8 in view of Lee et al.

Henley and Haruhiko do not show closing a first and second of the switches connected to the defective column and common test line.

Lee et al. teaches a common test line and at least one switch comprises a column test switch extending between a corresponding one of the data lines and the common line See Fig. 5, items T1-T3, D1-D6, in description See Col. 3, Lines 13-24). It would have been obvious to one of ordinary skill in the art at the time of invention to use common test line as shown by Lee et al. in the Henley and Haruhiko apparatus to close a first or/and second of the switches connected to the defective column and common test line in order use effectively LCD substrate space (See Col. 2, Lines 8-15 in the Lee et al. reference).

9. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Henley and Haruhiko as aforementioned in claim 14 in view Keeney et al..

Henley and Haruhiko do not teach a plurality of column driver switches each connected to one of the column lines and to one of the column drivers, and a plurality of registers each connected to control terminals of the column driver switches, storing a data value in one of the registers connected to a first one of the column driver switches to provide a control signal to close the first column driver switch.

Keeney et al. teaches to control additional circuitry and set up bypass bit, which could be loaded from external memory (registers) after the display is turned on (See Fig. 2, items 34,44, in description See paragraph 0040). It would have been obvious to one of ordinary skill in the art at the time of invention to implement the register control as shown by Keeney et al. in the Henley and Haruhiko apparatus storing a data value in one of the registers connected a plurality of column driver switches each connected to one of the column lines and to one of the column drivers, and a plurality of registers each connected to control terminals of the column driver switches, storing a data value in one of the registers connected to a first one of the column driver switches to provide a control signal in order to repair inoperative pixels in a display without requiring redundant circuitry (See paragraph 0007 in Keeney et al. reference).

Conclusion

10. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

The Kurogane (US Patent No. 6,259,424 B1) reference discloses display matrix substrate...

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The Jeung et al. (US Patent No. 6,111,558) reference discloses LCD including closed loop repair lines and methods of repairing same.

The Ishii et al. (US Patent No. 6,525,705 B1) reference discloses LCD device having redundant circuit.

Telephone inquire

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Leonid Shapiro whose telephone number is 703-305-5661. The examiner can normally be reached on 8 a.m. to 5 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Bipin Shalwala can be reached on 703-305-4938. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9314 for regular communications and 703-872-9314 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-305-4750.

ls
April 29, 2003



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